

## NOTES UPON SOME MYRIAPODS BELONGING TO THE U. S. NATIONAL MUSEUM.

BY CHARLES H. BOLLMAN.

Through the kindness of Dr. Charles V. Riley, I have received for examination the unidentified lot of myriapoda contained in the collection of the U. S. National Museum.

This lot contains both foreign and domestic species, but in this paper I have only given notes upon the forms found in the United States.

In addition, I have included several notes upon some material sent to me by Prof. L. M. Underwood, of Syracuse, N. Y.

These specimens originally belonged to a collection, the remainder of which he had presented to the Museum, and has been sent to me among the material received from Dr. Riley.

I desire to tender my thanks to Dr. C. V. Riley, Mr. J. B. Smith, and to Prof. L. M. Underwood for various favors.

1. *Polyzcniium rosalbum* (Cope). Marquette, Mich. E. A. Schwarz.

This specimen, a female, differs from any I have seen in having the general coloration more intensified. Dorsal plates reddish-brown, paler posteriorly and along margins; antennæ almost black; face and legs mottled with a purplish shade.

2. *Platydesmus lecontii* (Wood). Acc. 19542, 9, Tallulah, Ga.; L. M. Underwood. Segments 39-49.

3. *Spirobolus hebes* (Bollman). Acc. 14530, San Diego, Cal. Segments 47, ♀.

4. *Spirobolus marginatus* (Say). (?) Virginia, Kuehling. Acc. 19542, 13, Tallulah, Ga.; L. M. Underwood. Acc. 19542, 12, Macon, Ga.; L. M. Underwood. Segments of males 53-55, segments of females 52-57.

5. *Spirobolus spinigerus* (Wood). Acc. 19343, Cape Romano, Fla.; F. B. Meek. Segments of female, 47-49.

6. *Spirostrepus montezumæ* (Saussure). El Paso, Tex.; Potts.

The specimen before me seems to agree in all respects with the descriptions of *S. montezumæ*, which has only been found in the provinces of Vera Cruz and Orizoba, Mexico. This is the first record of any species of this genus from the United States.

7. *Parajulus canadensis* (Newport). Luray, Va.; L. M. Underwood.

These specimens agree in all respects with the females of *canadensis*, but a male might show some secondary sexual differences. Segments 48-53. Last segment only completely mucronate in about half the specimens.

8. *Parajulus venustus* (Wood). West Cliffe, Colo.; T. D. A. Cockerell.

9. *Parajulus impressus* (Say). Acc. 19542, 7, Tallulah, Ga.; L. M. Underwood. Acc. 19542, 17, Indian Springs, Ga.; L. M. Underwood. Segments 55.

10. *Parajulus pennsylvanicus* (Brandt). Luray, Va.; L. M. Underwood. Acc. 19542, 8, Macon, Ga.; L. M. Underwood.
11. *Lysiopetalum lactarium* (Say). Acc. 19542, 16, Indian Springs, Ga.; L. M. Underwood.
12. *Campodes flavicornis* (Koch). Washington, D. C.; J. B. Smith.
13. *Leptodesmus varius* (McNeill). Macon, Ga.; L. M. Underwood.

I have received from Professor Underwood a young female which agrees in all essential points with the types of *varius* from Pensacola, Fla.

14. *Fontaria crassicutis* (Wood). Acc. 19542, 2, Indian Springs, Ga.; L. M. Underwood. ♂.

Ventral plate and coxæ unarmed; that part of ventral plate which lies between the two pairs of legs of 11–16th segments produced into a conical lobe; legs densely but shortly pilose; color brown, lateral carinæ and under parts yellow; length 70<sup>mm</sup>, width 15<sup>mm</sup>.

15. *Fontaria georgiana*, sp. nov.

*Diagnosis*.—Probably related to *F. virginiensis*, but the ventral plates and coxæ sharply spined; the upper branch of genitalia bifid.

*Habitat*.—Lookout Mountain, Tallulah and Macon, Ga.; L. M. Underwood.

*Type*.—Acc's. 19542, 4, 6, 10, 11, 20; U. S. Nat. Museum.

*Description*.—Dull brown, lateral carinæ; a median dorsal row of spots and underparts yellow. Segments considerably wrinkled. Vertex sulcus shallow, occipital foveolæ 2+2, antennel and clypeal single. Lateral carinæ large, interlocking, posterior angles scarcely produced. Repugnatorial pore large, placed on the upper side of margin near the middle. Ventral spines sharp; coxæ spined. ♂; Segments more depressed than in the female, and antennæ more crassate. Coxæ of copulation foot pilose and armed above with a large straight spine, as in *F. virginiensis*. Distal halves of copulation foot curving away from each other, but the ends come together and interlock; bifid, the lower branch cylindrical, tapering and slightly curved upwards, the upper branch bifid, the seminal branch of which is flattened, the other is a cylindrical hooked spine. Length, 28–35<sup>mm</sup>.

This species shows relationship to *F. virginiensis* by the coxæ of copulation foot being provided with a long, straight spine. It also agrees with the more eastern specimens of *F. virginiensis* by having the ventral plates and coxæ spined. *F. georgiana* is described from numerous specimens from Macon, a few from Tallulah, and one from Lookout Mountain.

16. *Fontaria tallulah* sp. nov.

*Diagnosis*.—Ventral plates and coxæ spined as in *F. georgiana*, but separated from that species by having the lateral carinæ and posterior margin of dorsal plates red; posterior angle of lateral carinæ rather sharply produced.

*Habitat*.—Tallulah, Ga.; L. M. Underwood.

*Type*.—Acc. 19542, 20; U. S. Nat. Museum.

*Description*.—Brownish black, lateral carinæ and posterior border of each segment red; antennæ, legs, and underparts yellow. Segments depressed, anterior segment moderately attenuated; corrugated, especially posteriorly and on lateral carinæ; papillæ distinct; vertex sulcus distinct; occipital foveolæ 2+2, antennal and clypeal single (1+1). Lateral carinæ large, interlocking posterior angle rather sharply produced. Repugnatorial pores large, placed on the upper margin of posterior third. Ventral spines straight, stout, and conical, coxæ armed. Length, 25<sup>mm</sup>.

*F. tallulah* seems to be only related to *F. georgiana* by having the ventral plates and coxæ spined. In the pattern of coloration it approaches *F. rubromarginata*, but that species has the ventral plates unarmed and, therefore belongs to the same section as *F. corrugata evides*, etc. This species is described from an apparently adult female.

17. *Fontaria rileyi*, sp. nov.

*Diagnosis*.—Brown, lateral carinæ red; ventral plate and coxæ unarmed; copulation foot stout, flattened, end subsimilar to a bird's head.

*Type*.—Acc. 19542, 5, U. S. Nat. Museum.

*Habitat*.—Macon, Ga.; L. M. Underwood, ♂.

*Description*.—Brown, lateral carinæ red; antennæ, legs, and underparts yellow. Segments moderately depressed, scarcely attenuated anteriorly; very corrugated, papillæ not prominent; behind each pore an indistinct black swelling. Vertex sulcus shallow; occipital, antennal, and clypeal foveolæ single. Lateral carinæ large, interlocking, posterior angle not much produced. Repugnatorial pores large, placed on the posterior third of margin. Ventral plate unarmed; coxæ not or very slightly armed; femora strongly armed; claws normal. Male: Copulation foot stout, flattened, curved, end subsimilar to a bird's head. Length, 43.5<sup>mm</sup>; width, 10.2<sup>mm</sup>.

This species belongs to the same group as *F. carrugata evides*, etc., and should stand near the latter, as shown by the form of the copulation foot. It is separated from *F. evides* by having the copulation foot more flattened, especially the end, which is cylindrical in *evides*; besides *F. rileyi* attains a larger size.

This species is described from a male specimen.

I take great pleasure in dedicating this species to Dr. C. V. Riley, United States Entomologist, to whom I am indebted for numerous favors.

18. *Euryurus erythropygus australis*, sub. sp. nov.

*Diagnosis*.—Similar to *E. erythropygus*, but the lateral carinæ larger, the margin less swollen, more straight, and the denticules larger. Upper branch of copulation foot five times as long as the lower. Body slenderer.

*Type*.—Acc. 19542, 18, Indian Springs, Ga.; L. M. Underwood, ♂.

When compared with *E. erythropygus* this new geographical species plainly differs from it by the characters given. The lateral margin of carinae are also slightly crenulate and the anterior is somewhat serrate. Length, 28<sup>mm</sup>; width, 3.4<sup>mm</sup>.

The exceedingly long branch of the copulation foot at once separates *australis* from the true *erythropygus*. The inner tooth is also absent, but this is subject to slight variations in *erythropygus*.

The above notes are taken from a male which is slightly broken.

19. *Polydesmus branneri* Bollman. Acc. 19542, 23, Tallulah, Ga.; L. M. Underwood.

These specimens are all females, and I refer them to this species with some doubt, but as they are from the region in which *P. branneri* is found they must belong to that species and not to *P. serratus*, which is not quite so southern in its range.

20. *Polydesmus serratus* Say. Marksville and Natural Bridge, Va.; L. M. Underwood.

21. *Linotænia chionophila* Wood. ? No. 89, U. S. Nat. Mus. Washington, D. C.; J. B. Smith.

Pairs of legs of female 37-41.

22. *Linotænia fulva* Saeger. Acc. 19542, 15, Indian Springs, Ga.; L. M. Underwood.

Pairs of legs of male 51.

23. *Linotænia parriceps* Wood. Acc. 17414, Baird, Shasta County, Cal.; L. M. Green.

Pairs of legs of male 79.

24. *Geophilus foveatus* McNeill. Lookout Mountain; L. M. Underwood.

Pairs of legs of female 43; pleural pores less numerous than in the northern specimens.

25. *Geophilus umbraticus* McNeill. West Cliffe, Colo.; T. D. A. Cocherell.

Pairs of legs of female 49-51.

26. *Geophilus virginienensis*, sp. nov.

*Diagnosis*.—Related to *G. mordax*, but on the anterior ventral plates, especially the 7-13th, an ovate depressed poriferous area along the anterior margin, into which projects a conical elongation of the preceding segment; coxæ of prehensorial legs of about equal length and breadth.

*Habitat*.—Natural Bridge, Va.; L. U. Underwood.

*Type*.—U. S. Nat. Museum.

As is indicated by the above diagnosis this new species is closely related to *G. mordax*.

My specimen is a male, and as *G. mordax* is described from a female, the following secondary differences are worthy of notice:

Anal legs moderately crassate, densely and shorty pilose; claw large; pairs of legs 49; length 35<sup>mm</sup>.

If the characters given in the diagnosis are those peculiar to a male, this new species must be identical with *mordax*, but the proportions of

the coxæ of prehensorial legs seem to convince me that they are not markings peculiar to a male.

**27. *Geophilus smithi*, sp. nov.**

*Diagnosis.*—Related to *G. huronicus*, but the coxal pores more numerous, 25–30; coxæ of prehensorial legs of about equal length and width; pairs of legs of female 49; length 20–25<sup>mm</sup>.

*Habitat.*—Washington, D. C.; J. B. Smith.

*Type.*—U. S. Nat. Museum.

This species is very closely related to *G. huronicus*, but it seems to be sufficiently distinct as shown by the number of coxal pores, which are 25–30 in number in *smithi*, but only 7 or 8 in *huronicus*; also by the number of pairs of legs (*huronicus*, ♂ 53–55, ♀ 55–57).

This species is described from two females, one of which is an adult, the other being about three-fourths grown.

**28. *Geophilus bipuncticeps* Wood.** Macon, Ga.; L. M. Underwood.

Pairs of legs, ♂ 55, ♀ 55–59.

**29. *Scolopocryptops sexspinosus* Say.**

*Scolopocryptops georgicus* Meinert, Proc. Amer. Phil. Soc., 180, 1886 (*Georgia*).

Acc. 19542, 24, Tallulah, Ga.; L. M. Underwood. Acc. 19542, 14, Indian Springs, Ga.; L. M. Underwood. Luray, Va.; L. M. Underwood.

The specimens contained in the first two vials seem to belong to that phase of *S. sexspinosus* which has been described by Meinert under the name of *S. georgicus*. The only real tangible difference I can find between these specimens and the true *sexspinosus* is in the moderately toothed condition of the prosternum, and I think it is best to consider *georgicus* as not a valid species.

**30. *Theatops posticus* Say.** Acc. 19542, 3, Macon, Ga.; L. M. Underwood. Luray and Natural Bridge, Va.; L. M. Underwood.

**31. *Cryptops hyalinus* Say.** Natural Bridge, Va., and Lookout Mountain; L. M. Underwood.

Serratures of anal legs 6–2.

**32. *Scolopendra woodi* Meinert.** Acc. 19542, 1, Indian Springs, Ga.; L. M. Underwood.

**33. *Scolopendra heros* Girard.** Florida, F. B. Meek, Fort Reynolds; A. Clough.

**34. *Scolopendra pachypus* Kohlrausch.** Acc. 4631, San Diego, Cal.

As shown by the character of the anal legs this species seems to be sufficiently distinct from *heros*.

**35. *Lithobius proridens* Bollman.** Washington, D. C.; J. B. Smith. One specimen.

**36. *Lithobius obesus* Stuxberg.** No. 73a, U. S. N. M., Salt Lake City, Utah.

In this vial along with a few hexopods I found a male *Lithobius*, which I provisionally refer to this species.

As this is a male, the following differences are worthy of notice:

Antennæ 22 jointed; coxal pores 2, 3, 4, 3; spines of first pairs of legs 2, 3, 2; of anal pair 1, 3, 2, 0; anal legs of male moderately cras-



sate, tibia slightly swollen, excavated on the inner side near the base and the upper interior angle produced into a slight pilose lobe; last tarsal joints of legs more densely pilose beneath than the rest.

In the character of the anal legs this specimen agrees with *paradoxus*; but that species has the number of coxal pores and the spines of the anal legs less.

37. *Lithobius elattus*, sp. nov.

*Diagnosis*.—Related to *L. pullus*, but spines of anal legs 1, 3, 2, 0, or 1, 3, 1, 0; joints of antennæ 20-22; tarsal lobe of anal legs of male larger; size smaller than *L. pullus*.

*Habitat*.—Washington, D. C. (J. B. Smith); Marksville, Va. (L. M. Underwood).

*Type*.—U. S. Nat. Museum.

*Description*.—Light brown, head and antennæ darker; tip of antennæ rufous. Moderately robust, smooth, sparsely pilose; head of about equal length and breadth. Antennæ moderate, articles 20-22. Ocelli 8-10, arranged in 3-4 series. Prosternal teeth 2+2. Coxal pores 2, 3, 3, 2-3, 4, 4, 3, round. Spines of first pair of legs 1, 2, 1; of penultimate pair 1, 3, 3, 2; of anal pair 1, 3, 2, 0-1, 3, 1, 0.

Male: Anal legs more crassate; first tarsæ of anal legs prolonged into a pilose lobe at its upper interior angle. Female: Claw tripartite, short and wide; spines 2+2, short and stout, end flattened and barely serrate. Length 8-9.5<sup>mm</sup>.

This species is described from four specimens, three females and one male from Washington, D. C., and a male from Marksville, Va.

Although the above descriptions hardly seem to do justice in separating this new species from *L. pullus*, yet, when we place the two species side by side, they can not be mistaken, as the size of *pullus* is always 2-4<sup>mm</sup> larger.

Time may prove that this new species is only an eastern variety of *L. pullus*, but until intermediate specimens are found it is best to consider them as distinct species.

38. *Lithobius kochi* Stuxberg. West Cliffe, Colo.; T. D. A. Cockerell.

Anal legs armed with two claws. Coxal pores few in a single series. Penultimate pair of legs armed with two claws. Coxal of last two pairs of legs laterally armed. Testaceous brown, antennæ and head darkest, legs paler. Moderately slender, smooth, sparsely pilose; head of about equal length and breadth. Antennæ short, reaching to the fifth segment, articles 20. Ocelli 8 or 9, arranged in 4 series. Prosternal teeth 2+2. Coxal pores 2, 2, 3, 3-3, 3, 3, 3, round. Spines of first pair of legs 1, 1, 1; of penultimate pair 1, 3, 3, 2; of anal pair 1, 3, 2, 0.

Male: Anal legs somewhat stouter than those of female. Female: Claw of genitalia bipartite, short and wide; spines 2+2; inner much shorter. Length 7.-7.8<sup>mm</sup>.

I at first considered these specimens as representing a new species,

but as the apparent differences gradually dwindled down to the number of spines of the first pair of legs I finally concluded that they were identical with *kochi*, which has only been found at Saucelito, Cal.

For the sake of completeness I have given a description of the specimens.

39. *Littleobius atkinsoni* Bollman. Macon, Ga., L. M. Underwood.

Among the material sent by Dr. Underwood are three specimens, two females and one male that I refer to this species.

The following points are worthy of notice: Antennæ 21-33 articulated; ocelli 8-20, arranged in 4-7 series; prosternal teeth 5+5 or 7+7; coxæ of last three pairs of legs laterally armed; coxal pores 3, 4, 4, 4-6, 7, 7, 6, round or transverse; spines of first pair of legs 1, 2, 1 or 2, 3, 1; spines of anal and penultimate pairs 1, 3, 3, 1; last two tarsal joints of anal and penultimate pairs of legs of male sulcate on the inner side.

40. *Lithobius xenopus*, sp. nov.

*Diagnosis*.—Related to *L. mordax*, but the femoral and tibial joints of the anal legs of male strongly modified.

*Habitat*.—Macon, Ga.; L. M. Underwood.

*Type*.—Acc. 19542, 22 U. S. Nat. Museum

*Description*.—Brown, head rufous, antennæ dark, legs pale. Moderately slender, rather smooth, sparsely pilose; head wider than long (4:3). Antennæ moderately long, reaching the seventh segment, articles 30, short. Ocelli 32, in 7 transverse series. Prosternal teeth 6+7. Coxal pores 6, 6, 6, 4, round. Spines of first pair of legs 2, 3, 2; of penultimate pair 1, 3, 3, 2; of anal pair 1, 3, 3, 2. Claws of anal and penultimate pairs of legs single. Coxæ of the last three pairs of legs laterally armed.

Male: Anal legs moderately short; femora considerably swollen on the inner side, and armed on the posterior half with two large, slightly curved, bluntly serrated spines; tibia excavated on the inner side, the posterior half produced into a bipartite contorted lobe, of which the posterior is armed with a short, curved, sharply serrated spine. The last two tarsal joints of anal and penultimate pairs of legs sulcate on the inner side. Length 17.5<sup>mm</sup>.

Although the males of nearly every species of the subgenus *Neolithobius* show some modifications of the anal legs, yet this species presents a curious peculiarity and approaches to that of *L. bilabiatus* in the extent of the modification. The above description is based upon a single male specimen.

41. *Lithobius latzeli* Meinert. Marksville and Luray, Va.; L. M. Underwood.

Antennæ 29-34; coxal pores 5, 6, 5, 4-6, 7, 7, 6; prosternal-teeth 9+9 or 10+10; spines of first pair of legs 2, 3, 2; spines of anal and penultimate pairs 1, 3, 3, 2.

42. *Lithobius underwoodi*, sp. nov.

*Diagnosis*.—Related to *L. juvenus*, but the prosternal teeth 6+7; coxal pores 7, 7, 7, 6, transverse; size much larger.

*Habitat*.—Macon, Ga.: L. M. Underwood.

*Type*.—Acc. 19542, 22; U. S. Nat. Museum.

*Description*.—Dark shining brown, head and antennæ darkest, legs paler. Robust, attenuated posteriorly, moderately smooth; head wider than long (4:3). Antennæ long, extending to the tenth segment, articles 32. Ocelli 25, in 6 transverse series. Prosternal teeth 6+7. Coxal pores 7, 7, 7, 6, transverse. Spines of first pair of legs 2, 3, 2; of penultimate and anal pair 1, 3, 3, 2. Anal and penultimate pairs of legs each with two claws. Coxæ of the last three pairs of legs laterally armed.

Female: The last two tarsal joints of anal and penultimate pairs of legs sulcate on the inner side: claw of genitalia large and long, indistinctly tripartite; spines 2+2, stout, inner shortest. Length 20<sup>mm</sup>.

This species is very different from *L. juvenus*, which is the only North American species belonging to the same group, although they may have originally sprung from the same stock. This species is described from a female which has the anal pairs of legs broken off.

43. *Lithobius rex*, sp. nov.

*Diagnosis*.—Related to *L. validus*, of Europe, but the antennæ 20-jointed.

*Habitat*.—Tallulah, Ga.: L. M. Underwood.

*Type*.—Acc. 19542, 21; U. S. Nat. Museum.

*Description*.—Grayish-brown, head, antennæ, first dorsal plate, and margins of others dark. Robust, attenuated posteriorly, dorsal plates much wrinkled, sparsely pilose; head wider than long (6:5). Antennæ long, extending to the ninth segment, articles 20, long. Ocelli 19, in 6 transverse series. Prosternal teeth 9+9. Coxal pores 8, 8, 8, 7, large, transverse. Spines of the first pair of legs 1, 3, 2; of penultimate pair 1, 3, 3, 2; of anal pair 1, 3, 2.

Female: Claw of genitalia wide and short, tripartite; spines 2+2, short and stout, ends flattened and obscurely serrate. Length 25<sup>mm</sup>.

This species is described from a female specimen, which has the fourth segment considerably angulated, and I at first placed it in a new subgenus. But a study of *multidentatus* showed that the angulation of the fourth dorsal plate was subject to considerable variation.

This is the only North American species of the subgenus *Eulithobius* that has the coxal pores in a single series, and in this respect approaches *L. validus* of Europe; but that species has 40-48 antennal joints. Acc. 19542, 21 contains a female of this species.

44. *Lithobius multidentatus* Newport. Marksville and Natural Bridge, Va.; L. M. Underwood.

INDIANA UNIVERSITY, December 1, 1888.